Agricultural Education

Program of Studies
2016-2017

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Agricultural Education

Course Title	Valid Course Code	Recommended Grade Level							Recommended Credit
		6	7	8	9	10	11	12	
Adv. Agri. Economics and Agribusiness Management	010101					X	X	X	1
Agri-Biology*	030713					X	X	X	1
Agri-Biotechnology	020210				X	X	X	X	1
Agribusiness/Farm Management	010131				X	X	X	X	1
Agriculture Communication	010110					X	X	X	1
Agriculture Construction Skills	010241				X	X	X	X	1
Agricultural Education Co-op	030790						X	X	1-3
Agricultural Education Internship	030791						X	X	1-3
Agriculture Employability Skills	010121					X	X	X	1
Agricultural Math	030707 (CTE Credit) 030708 (Math Credit)					X	X	X	1
Agriculture Power and Machinery Operation	010212				X	X	X	X	1
Agriculture Sales & Marketing	010111					X	X	X	1
Agriculture Structures & Design	010211				X	X	X	X	1
Agriscience	030711 (CTE Credit) 030712 (Science Credit)				X	X	X	X	1
Agriscience Exploration	030717	X	X	X					N/A
Animal Science	020501				X	X	X	X	1
Animal Technology	020502				X	X	X	X	1
Aquaculture	020520				X	X	X	X	1
Crop Technology	010610				X	X	X	X	1
Environmental Science & Technology	030609				X	X	X	X	1
Equine Science	020510				X	X	X	X	1
Floriculture & Floral Design	010621				X	X	X	X	1
Food Processing, Distribution, and Marketing	010701				X	X	X	X	1

Food Science & Technology	010702				X	X	X	X	1
Forestry	030610				X	X	X	X	1
Greenhouse Technology	010641				X	X	X	X	1
Landscape and Turf Management	010631				X	X	X	X	1
Leadership Dynamics	030702				X	X	X	X	1
Nursery & Orchard Tech.	010651				X	X	X	X	1
Murray State University Advanced Animal Science	020504					X	X	X	1
Murray State University Contemporary Issues in Agriculture	030725					X	X	X	1
Murray State University Field Applications in Agriculture	030726					X	X	X	1
Murray State University Introduction to Agribusiness	010135					X	X	X	1
Murray State University Introduction to Agriculture Education	030727					X	X	X	1
Murray State University Introduction to Leadership and LifeKnowledge	030727					X	X	X	1
Murray State University Introduction to Plant and Soil Science	010615					X	X	X	1
Murray State University Introduction to Pre-Veterinary Science	020505					X	X	X	1
Plant and Land Science	010611				X	X	X	X	1
Principles of Agriscience & Technology	030715				X				1
Principles of Agriscience & Technology, Grade 8	030714			X					N/A
Small Animal Science & Technology	020503				X	X	X	X	1
Small Power & Equipment	010231				X	X	X	X	1
Veterinary Science	020511					X	X	X	1
Wildlife Resources	030611				X	X	X	X	1

*Interdisciplinary courses that meet the life science requirement

AGRICULTURAL EDUCATION

Overview of Agricultural Education

Purpose:
Agricultural Education is composed of three distinct, inter-related components: Classroom & Laboratory Instruction; Supervised Agricultural Experience; FFA Student Organization. In order for a program to be most effective, all three components must be in place and active.

Classroom & Laboratory Instruction: In the classroom, students are introduced to concepts and theories dealing with a wide range of agricultural topics, based on state academic and occupational standards. Classroom instruction is followed by laboratory instruction, where the concepts and theories can be carried through to their "real world" applications. Students "learn by doing" through "hands-on" practice. This results in applied, contextual learning for the student.

Supervised Agricultural Experience: Skills learned through classroom and laboratory instruction are further developed and reinforced through the work based learning component of the program, known as Supervised Agricultural Experience (SAE). Students plan, carry out and keep records on their SAE's. This component allows the student to work and learn in a real-world setting, outside the regular school day. The format of the SAE includes the following:

- Entrepreneurial Projects
- Placement in Agricultural Related Business
- Agriscience Research
- Ag Related Service Learning
- School Based Enterprises (beyond the normal school day)
- Home Improvement

FFA Student Organization: The co-curricular student organization, FFA, provides an avenue for students to "develop premier leadership, personal growth and career success, through agricultural education"*. FFA offers students many ways to develop and grow as a person. It provides incentive for improved student performance through its awards programs, such as Proficiency Awards (directly related to SAE), Career Development Events (competitive events related to SAE and classroom/laboratory instruction), Scholarship Programs (directly related to all three components), Leadership Training Activities (directly related to all three components) and many others.

Agricultural Education programs utilize inquiry based pedagogy in teaching and learning. The three-component program summarized above allows the student to be better equipped to be successful within the agricultural industry and beyond.

Career Pathways:
**Agribiotechnology Systems*
**Agribusiness Systems*
**Agriculture Power, Structural, and Technical Systems*
**Animal Science Systems*
**Environmental Science/Natural Resources Systems*
**Food Science and Processing Systems*
**Horticulture/Plant Science Systems*

Standard Based Curriculum
The agricultural education curriculum is composed of standards developed by industry professionals within each pathway. In order for students to be able to successfully continue their education or enter a career in the pathway, the standards developed represent the introductory knowledge desired by employers and educators. Standards within each pathway range from basic recall to high-level application and synthesis. These standards are the Kentucky Occupational Skill Standards. These standards describe the necessary **occupational, academic,** and **employability** skills needed to enter the workforce or post-secondary education in specific career areas. Industry leaders are involved in reviews of standards to ensure they remain current and reflect industry needs.

Link to KOSSA Skill Standards documents via:
http://education.ky.gov/CTE/kossa/Pages/KOSSAStandardsDocs.aspx

Work Based Learning
Supervised Agricultural Experience (SAE) programs have been a cornerstone of agricultural education since its inception. The logical application of classroom experiences, coupled with opportunities to gain knowledge not available in a traditional course, makes SAE a vehicle for education beyond the school. Cooperative experience, internships, shadowing and mentoring opportunities provide depth and breadth of learning which may be part of an SAE program. The Work Base Learning Guide is available on the KDE webpage: http://education.ky.gov/CTE/cter/Pages/WBL.aspx

Valid KOSSA and Industry Certification for Career Readiness
The Valid List of KOSSA and Industry Certifications for Career Readiness can be viewed via the following link: http://education.ky.gov/CTE/kossa/Pages/ValidKOSSAList.aspx. The valid list is reviewed annually through the established process and publishes by June 1 for the corresponding academic year.

AGRICULTURAL EDUCATION CAREER PATHWAYS
2016-2017

AGRIBUSINESS SYSTEMS
CIP 01.0101.00

PATHWAY DESCRIPTION: Agribusiness systems contribute to the production, processing, marketing, distribution, financing and development of agricultural commodities and resources. This includes food, fiber, wood products, natural resources, horticulture, and other plant and animal products and services. Agribusiness is a high-tech industry that uses satellite systems, computer databases and spreadsheets, biotechnology and many other innovations to increase efficiency and profitability.

BEST PRACTICE COURSES	**EXAMPLE ILP-RELATED CAREER TITLES**
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete* ***(1-2) ONE - TWO CREDITS from the following:*** • 030715 Principles of Agricultural Science and Technology • 030711 Agriscience *Choose* ***(2-3) TWO - THREE CREDITS*** *from the following:* • 010131 Agribusiness/Farm Management • 010121 Ag. Employability Skills • 010111 Agriculture Sales & Marketing • 010110 Agriculture Communications • 010135 Murray State University Introduction to Agribusiness *May Substitute <u>ONE</u> Credit Below for Pathway Courses:* • 010641 Greenhouse Technology • 020503 Small Animal Technology • 030790 Agricultural Education Co-op • 030791 Agricultural Education Internship	Entrepreneur Photojournalist Agriculture Lawyer Sales Representative Independent Business Owner Editor Retail Salesperson Auctioneer

AGRICULTURAL EDUCATION CAREER PATHWAYS
2016-2017

AGRIBIOTECHNOLOGY SYSTEMS
CIP 26.1200.00

PATHWAY DESCRIPTION: Agribiotechnology focuses on the application of scientific principles and techniques to advance the agriculture industry. Focusing on animal and plant concepts, this pathway develops competency by analyzing current procedures in agriculture while synthesizing new ways of thinking. Microbiology, molecular biology, enzymology and immunology procedures are centerpieces for determining how to feed an ever growing world population.

BEST PRACTICE COURSES	**EXAMPLE ILP-RELATED CAREER TITLES**
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete **(1-2) ONE - TWO CREDITS:*** • 030715 Principles of Agricultural Science and Technology • 030711 Agriscience *Choose **(2-3) TWO - THREE CREDITS** from the following:* • 030713 Agri-Biology • 020210 Agribiotechnology • 020511 Veterinary Science • 010702 Food Science & Technology • 030609 Environmental Science & Technology *May Substitute <u>ONE</u> Credit Below for Pathway Courses:* • 020520 Aquaculture • 010121 Ag. Employability Skills • 030790 Agricultural Education Co-op • 030791 Agricultural Education Internship	Biotechnologist Veterinarian Marine Biologist Biomedical Engineer Biologist Biochemist Microbiologist Botanist

AGRICULTURAL EDUCATION CAREER PATHWAYS
2016-2017

AGRICULTURAL POWER, STRUCTURAL, TECHNICAL SYSTEMS
CIP 01.0201.00

PATHWAY DESCRIPTION: The Power, Structural and Technical Systems pathway is built on the application of concepts in engineering, hydraulics, pneumatics, electronics, power, structures, and controls to the field of agriculture. Students design agricultural structures as well as machinery and equipment, while utilizing safe practices of operation and maintenance.

BEST PRACTICE COURSES	**EXAMPLE ILP-RELATED CAREER TITLES**
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete **(1-2) ONE - TWO CREDITS** from the following**:*** • 030715 Principles of Agricultural Science and Technology • 030711 Agriscience *Choose **(2-3) TWO - THREE CREDITS** from the following:* • 010241 Agriculture Construction Skills • 010231 Small Power Equipment • 010212 Agriculture Power and Machinery Operation • 010211 Agriculture Structures and Designs *May Substitute <u>ONE</u> Credit Below for Pathway Courses:* • 010111 Agriculture Sales and Marketing • 010121 Ag. Employability Skills • 010131 Agribusiness/Farm Management • 030790 Agricultural Education Co-op • 030791 Agricultural Education Internship	Agricultural Engineer Welder Mechanical Engineer Diesel Technician Electrical Engineer Heavy Equipment Technician Farm Equipment Technician Small Engine Mechanic

AGRICULTURAL EDUCATION CAREER PATHWAYS
2016-2017

ANIMAL SCIENCE SYSTEMS
CIP 01.0901.00

PATHWAY DESCRIPTION: This program that focuses on the scientific principles that underline the breeding, care, and management of agricultural animals, and the production, processing, and distribution of agricultural animal products. This includes developing better, more efficient ways of producing and processing meat, poultry, eggs and dairy products, as well as studying genetics, nutrition, reproduction, growth and development of animals.

BEST PRACTICE COURSES	**EXAMPLE ILP-RELATED CAREER TITLES**
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete **(1-2) ONE - TWO CREDITS:*** • 030715 Principles of Agricultural Science and Technology • 030711 Agriscience *Choose **(2-3) TWO - THREE CREDITS** from the following:* • 020501 Animal Science • 020502 Animal Technology • 020510 Equine Science • 020503 Small Animal Technology • 020511 Veterinary Science • 020504 Murray State University Advanced Animal Science • 020505 Murray State University Introduction to Pre-Veterinary Science *May Substitute <u>ONE</u> Credit Below for Pathway Courses:* • 010702 Food Science & Technology • 010701 Food Processing, Distribution & Marketing • 020520 Aquaculture • 010111 Agriculture Sales and Marketing • 030713 Agribiology • 010131 Agribusiness/Farm Management • 010121 Ag. Employability Skills • 030790 Agricultural Education Co-op • 030791 Agricultural Education Internship	Veterinarian Animal Scientist Marine Biologist Zoologist Horse Trainer Animal Breeder Farmer Veterinary Technician

AGRICULTURAL EDUCATION CAREER PATHWAYS
2016-2017

ENVIRONMENTAL SCIENCE/NATURAL RESOURCES SYSTEMS
CIP 03.0101.00

PATHWAY DESCRIPTION: This program that focuses on the studies and activities relating to the natural environment and its conservation, use, and improvement. Includes instruction in subjects such as climate, air, soil, water, land, fish and wildlife, and plant resources; in the basic principles of environmental science and natural resources management; and the recreational and economic uses of renewable and nonrenewable natural resources.

BEST PRACTICE COURSES	**EXAMPLE ILP-RELATED CAREER TITLES**
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete **(1-2) ONE - TWO CREDITS:*** • 030715 Principles of Agricultural Science and Technology • 030711 Agriscience *Choose **(2-3) TWO - THREE CREDITS** from the following:* • 030610 Forestry • 030609 Environmental Science & Technology • 030611 Wildlife Resources • 020520 Aquaculture • 010611 Plant & Land Science • 030713 Agribiology *May Substitute <u>ONE</u> Credit Below for Pathway Courses:* • 010121 Ag. Employability Skills • 010111 Agriculture Sales & Marketing • 010651 Nursery and Orchard Tech • 010641 Greenhouse Technology • 030790 Agricultural Education Co-op • 030791 Agricultural Education Internship	Conservation Officer Park Warden / Ranger Outdoor Guide Environmental Engineer Ecologist Wildlife Technician Taxidermist Arborist

AGRICULTURAL EDUCATION CAREER PATHWAYS
2016-2017

FOOD SCIENCE AND PROCESSING SYSTEMS
CIP 01.1001.00

PATHWAY DESCRIPTION: A program that focuses on the application of biological, chemical, and physical principles to the study of converting raw agricultural products into processed forms suitable for direct human consumption, and the storage of such products. Includes instruction in applicable aspects of the agricultural sciences, human physiology and nutrition, food chemistry, agricultural products processing, food additives, food preparation and packaging, food storage and shipment, and related aspects of human health and safety including toxicology and pathology.

BEST PRACTICE COURSES	**EXAMPLE ILP-RELATED CAREER TITLES**
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete **(1-2) ONE - TWO CREDITS:*** • 030715 Principles of Agricultural Science and Technology • 030711 Agriscience *Choose **(2-3) TWO - THREE CREDITS** from the following:* • 030713 Agri-Biology • 010702 Food Science & Technology • 010701 Food Processing, Distribution & Marketing • 020210 Agribiotechnology *May Substitute <u>ONE</u> Credit Below for Pathway Courses:* • 020501 Animal Science • 020520 Aquaculture • 010111 Agriculture Sales & Marketing • 010121 Ag. Employability Skills • 030790 Agricultural Education Co-op • 030791 Agricultural Education Internship	Food Inspector Butcher Food Scientist Veterinarian Chef Cook Scientist Dietitian

AGRICULTURAL EDUCATION CAREER PATHWAYS
2016-2017

HORTICULTURE AND PLANT SCIENCE SYSTEMS
CIP 01.1101.00

PATHWAY DESCRIPTION: This program that focuses on the scientific principles that underlie the breeding, cultivation, and production of agricultural plants, and the production, processing, and distribution of agricultural plant products. Includes instruction in the plant sciences, crop cultivation and production, and agricultural and food products processing.

BEST PRACTICE COURSES	**EXAMPLE ILP-RELATED CAREER TITLES**
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete **(1-2) ONE - TWO CREDITS:*** • 030715 Principles of Agricultural Science and Technology • 030711 Agriscience *Choose **(2-3) TWO - THREE CREDITS** from the following:* • 010611 Plant/Land Science • 010621 Floriculture/Floral Design • 010641 Greenhouse Technology • 010651 Nursery /Orchard Technology • 010631 Landscaping/Turf Management • 010610 Crop Technology • 010615 Murray State University Introduction to Plant and Soil Science *May Substitute <u>ONE</u> Credit Below for Pathway Courses:* • 010131 Agribusiness/Farm Management • 010121 Ag. Employability Skills • 010111 Agriculture Sales and Marketing • 030713 Agribiology • 030790 Agricultural Education Co-op • 030791 Agricultural Education Internship	Horticulturist Agronomist Landscaper Farmer Scientist Landscape Architect Nursery / Greenhouse Grower Botanist

COMPLIMENTARY OR ADVANCED COURSEWORK BEYOND AGRICULTURAL EDUCATION PATHWAY(s)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complimentary Coursework “Beyond the Pathway” may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
• 030702 Leadership Dynamics
• Career Options
• JAG Courses

Sample Agricultural Education Career Pathway

KENTUCKY CAREER PATHWAY/PROGRAM OF STUDY TEMPLATE

COLLEGE/UNIVERSITY: _____ **CLUSTER:** Agriculture Food and Natural Resources
HIGH SCHOOL (S): **PATHWAY:** Animal Science
PROGRAM: Agricultural Education

	GRADE	ENGLISH	MATH	SCIENCE	SOCIAL STUDIES	GRADUATION REQUIREMENTS CORE CTE COURSES ELECTIVE COURSES				CREDENTIAL CERTIFICATE DIPLOMA DEGREE*	OCCUPATIONS RELATED TO THIS PATHWAY
SECONDARY	9	English I	Algebra I	Physical Sc.	Government	Health/PE	Principles of Agriculture				Agribusiness Service Manager, Production Manager, Laboratory Technician, Extension Agent, Pharmaceutical Sales, Feed Sales Representative, Genetics, Equipment Sales
	10	English II	Geometry	Biology I (Agribiology)	World Civ.	Humanities	Animal Science	Animal Technology			
	11	English III	Algebra II	Chemistry I	US History	World Language I	Small Animal Tech	Equine Science			
	12	English IV	Pre-Calculus	Advanced Biology		World Language II	Vet Science	Ag Co-op		KOSSA - Animal Science	
		GENERAL EDUCATION REQUIREMENTS				CONTENT SPECIFIC COURSES					DEGREE
POSTSECONDARY	Year 13	English Composition I	College Algebra	Biology	Historical Perspective	Prin. Of Animal Science & Lab	Orientation	Principles of Agronomy	Agricultural Mechanics	Agricultural Equipment	Bachelor or Science in Animal Science
	Year 14	Composition II		Chemistry I	Economics	Conservation of Ag Resources	Soils	Ag Economics	Communi-cations	Diversity	
	Year 15				Arts	Pest Management	Animal Science Selection	Accounting	Prof Skills Seminar	Animal Production Selection	
	Year 16	College to Career Seminar		CIS 212	Humanities	Feeds and Feeding	Ag Finance	Senior Capstone	Wellness		

Graduation Requirements: course credits needed to achieve a high school diploma

CORE CTE Courses identified for a career major in a career pathway and aligned with KOSSA and Industry Certification.

Elective Courses: courses relating to students' needs and interests and provide support in achieving career goals

Credit-Based Transition Programs (e.g. Dual/Concurrent Enrollment, Articulated Courses, 2+2+2)

CCTI College and Career Transitions Initiative

Funded by the U.S. Department of Education (VC516202 0001) Revised May 31, 2012 CTE/Kentucky

Agricultural Education Courses

Agribiotechnology
Valid Course Code: 020210

Course Description
Biotechnology in agriculture is designed to emphasize the interrelationship of science and technology and the impact of this technology on agriculture and agricultural products. The curriculum includes: career opportunities in the agricultural biotechnology industry; basic concepts about biotechnology; how genetic information is transferred and changed by engineering; opportunities, impacts and public issues concerning biotechnology; the processes and applications of biotechnology in plant and animal science; and the applications of microbial biotechnology in agriculture. Content will be enhanced with appropriate applied science laboratory activities and computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.

Content/Process
Students will: 1. Demonstrate employability and social skills relative to the career cluster. 2. Investigate basic concepts about biotechnology in agriculture. 3. Analyze how genetic information is transferred and changed. Debate opportunities, impacts, and public issues concerning biotechnology. 4. Investigate the processes and applications of biotechnology in plant science. 5. Investigate the processes and applications of biotechnology in animal science. Investigate the applications of microbial biotechnology in agriculture. 6. Maintain records on a supervised agricultural experience programs and be able to summarize and analyze results in making financial decisions 7. Utilize activities of FFA as an integral component of course content and leadership development. 8. Apply science, math and communication skills within the technical content

Connections
• Kentucky Occupational Skill Standards – Agricultural Education • State Standards ELA and Math • 21st Century Skills • National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster • FFA CONNECTIONS: Agriscience Fair, Agriscience Student Awards, Emerging Ag Technology Proficiency, Food Science, Environmental Science, AG Issues CDE's, Public and Extemporaneous Speaking

Agriculture Communications
Valid Course Code: 010110

Course Description

This course develops an understanding of fundamental skills necessary to be successful in the agricultural communications industry. Provides guided practice and applied experience utilizing various styles of communication including oral, written, and electronic communications. Techniques of communications will include: traditional print media, brochure development, photography, videography, computer program applications, and Internet usage including e-mail. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.

Content/Process

Students will:

1. Demonstrate employability and social skills relative to the career cluster. Develop skills in public, extemporaneous and impromptu speaking.
2. Communicate to resolve conflict and promote team building.
3. Perform computer skills related to word processing, publishing, presentations and computer graphics.
4. Develop skills related to proper telephone usage.
5. Develop skills to produce print quality newspaper and magazine articles.
6. Develop skills to produce brochures and sale ads.
7. Develop skills for photography and videography used in communications.
8. Utilize skills developed to produce radio and television ads/promotions.
9. Develop skills needed to produce multimedia presentations.
10. Utilize the Internet for research, E-mail, and basic communication processes.
11. Understand how non-verbal communication plays a part in interpersonal development.
12. Conduct meetings by using parliamentary procedure.
13. Learn to develop and complete professional quality resumes.
14. Learn techniques to assist in applying and interviewing for a job.
15. Demonstrate the ability to do market research and organization for presentations.
16. Plan, organize and deliver a sales presentation.
17. Maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
18. Utilize activities of FFA as an integral component of course content and leadership development.
19. Apply science, math and communication skills within the technical content.

Connections

- Kentucky Occupational Skill Standards – Agricultural Education
- State Standards ELA and Math
- 21st Century Skills
- National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster
- FFA Connections: Agricultural Education Proficiency, Agricultural Communications Proficiency, Job Interview CDE, Parliamentary Procedure CDE, Speaking CDEs, Agriculture Issues CDE, Marketing Plan CDE

Agricultural Construction Skills
Valid Course Code: 010241

Course Description

Prepares students to construct and maintain agricultural structures and equipment. Develops basic skills such as: tool identification, interpreting plans, calculating a bill of materials, electrification, carpentry, welding, metal fabrication, plumbing, and masonry. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program. This course may be extended to two credits offered on a two-hour basis provided that instruction is enhanced with laboratory experience, project construction, and in-depth skill development.

Content/Process

Students will:

1. Demonstrate safe practices specific to agriculture power, structural, and technical systems (e.g., PPE, materials handling, shop/laboratory operation)
2. Outline power unit and equipment controls, startup and shut down procedures, and operation inspections using owners/service manuals
3. Demonstrate proper use of measurement and layout tools
4. Select, maintain, and use hand/power tools in service, construction, and fabrication
5. Construct and/or repair fencing, including wood, static wire, electrical wire, and other fencing materials
6. Employ safe usage of electric arc welding techniques and machines.
7. Describe the steps in basic repair of a metal object (welding, brazing, riveting, etc.)
8. Identify kinds and characteristics of metal materials
9. Distinguish welding processes, positions, materials preparation, and equipment work piece setup (beveling/grinding)
10. Calculate materials for concrete, brick, stone, or masonry units in agricultural construction
11. Demonstrate the basic principles of electricity.
12. Select and utilize proper painting materials and tools.
13. Develop plans using scales and legends
14. Prepare bills of materials to accompany plans and sketches
15. Develop criteria for selecting materials based on cost, quantities, and characteristics for a specific project plan
16. Apply basic principles of design, fabrication, and installation of agricultural structures
17. Discuss the steps in constructing a project out of wood (measuring, cutting, fastening, finishing, etc.)
18. Determine proper insulation material and method for various tasks
19. Relate the influence of agricultural mechanics industry on globalized production.
20. Identify the importance and use of computer-based systems in agriculture, food, and natural resources
21. Discuss types of renewable and non-renewable energy (e.g., solar, wind, hydro, fossil fuels)
22. Explain environmental impacts and sustainability of various energy sources (e.g., coal, hydro, wind, geothermal)
23. Demonstrate employability and social skills relative to the career cluster
24. Maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
25. Utilize activities of FFA as an integral component of course content and leadership development.

Connections

- Kentucky Occupational Skill Standards – Agricultural Education
- State Standards ELA and Math
- 21st Century Skills
- National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster
- FFA CONNECTIONS: Agricultural Mechanics CDE, Welding CDE, Job Interview CDE, Agricultural Mechanics Design and Fabrication Proficiency and Agricultural Mechanics Repair and Maintenance Proficiency, Agricultural Mechanics Energy Systems Proficiency

Agricultural Education Co-Op
Valid Course Code: 030790

Course Description
Cooperative Education for CTE courses provide supervised work site experience related to the student's identified career pathway. A student must be enrolled in an approved pathway course during the same school year that the co-op experience is completed or have already completed the pathway the previous year. Students who participate receive a salary for these experiences, in accordance with local, state and federal minimum wage requirements according to the Work Based Learning Guide. http://education.ky.gov/CTE/cter/Pages/WBL.aspx
Content/Process
Students will: 1. Demonstrate and practice safe work habits at all times. 2. Gain career awareness and the opportunity to test career choice(s) 3. Receive work experience related to career interests 4. Integrate classroom studies with work experience 5. Receive exposure to facilities and equipment unavailable in a classroom setting 6. Increase employability potential
Connections
• Kentucky Occupational Skill Standards – Agricultural Education • State Standards ELA and Math • 21st Century Skills • National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster • National FFA Organization Career Development Events, Leadership Development Events, National Proficiency Awards

Agricultural Education Internship
Valid Course Code: 030791

Course Description
Internship for CTE courses provide supervised work-site experience for high school students who are enrolled in a pathway course associated with their identified career pathway. Internship experiences consist of a combination of classroom instruction and field experiences. A student receiving pay for an intern experience is one who is participating in an experience that lasts a semester or longer and has an established employee-employer relationship. A non-paid internship affects those students who participate on a short-term basis (semester or less). All information referenced to the Work Based Learning Guide http://education.ky.gov/CTE/cter/Pages/WBL.aspx
Content/Process
Students will: 1. Demonstrate and practice safe work habits at all times. 2. Gain career awareness and the opportunity to test career choice(s) 3. Receive work experience related to career interests 4. Integrate classroom studies with work experience 5. Receive exposure to facilities and equipment unavailable in a classroom setting 6. Increase employability potential
Connections
• Kentucky Occupational Skill Standards – Agricultural Education • State Standards ELA and Math • 21st Century Skills • National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster • National FFA Organization Career Development Events, Leadership Development Events, National Proficiency Awards

Agriscience Exploration
Valid Course Code: 030717

Course Description
The course content focuses on exploring current and future agricultural careers as well as the historical events that molded the industry. The local agricultural industry is emphasized, and the local high school program and FFA activities are featured. Leadership development will be provided through FFA. Classroom, laboratory and field trip experiences should be provided.
Content/Process
Students will: 1. Summarize careers in agriculture and list verifiers of workplace readiness. 2. Review the historical importance of the agricultural industry and how agriculture shaped world history 3. Identify and research careers in agriculture. 4. Conduct a career self-analysis. 5. Visit the agricultural department at the high school and become acquainted with the curricula. 6. Recognize the opportunities for leadership development provided by the FFA organization. 7. Relate the importance of agriculture in the local, state, national, and global economies. 8. Identify tools, equipment and materials common in agriculture. 9. Identify current, major contemporary issues in agriculture. 10. Give examples of the new technological developments in agriculture. 11. Examine basic home and farm safety.
Connections
• Kentucky Occupational Skill Standards – Agricultural Education • State Standards ELA and Math • 21st Century Skills • National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster • FFA CONNECTIONS: FFA Creed Speaking, Jr. Public, & Jr. Extemporaneous Speaking, FFA Quiz, Junior Parliamentary Procedure CDE

Agri-Biology
Valid Course Code: 030713

Course Description

Agri-Biology is a one-credit interdisciplinary course that meets the "life science requirement" for science credit. This course may count as one of the three required credits in science for high school graduation. Agri-Biology uses agricultural contexts to present the required life science content for assessment, as outlined in the program of studies. As students study practical agricultural concepts, they apply scientific ways of thinking and working to real-life problems. The agriculture teacher and science teacher work together in planning and evaluating the course. Content may be enhanced by utilizing appropriate technology. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.

Content/Process

Students will:

1. Demonstrate employability and social skills relative to the career cluster
2. Investigate how cell structure, function and processes affect living things
3. Examine the molecular basis of heredity
4. Explore how DNA affects organisms' morphology and physiology
5. Analyze how behavioral patterns ensure reproductive success
6. Recognize how agriculturalists manipulate reproductive success
7. Examine the processes of biological change
8. Investigate how agricultural crops and animals reflect diversity in nature
9. Explore interdependence of organisms within ecosystems
10. Analyze the alteration of ecosystems by agricultural processes
11. Differentiate between croplands and natural ecosystems
12. Recognize how organ systems work together to keep animals healthy
13. Maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
14. Utilize activities of FFA as an integral component of course content and leadership development.

Connections

- Kentucky Occupational Skill Standards – Agricultural Education
- State Standards ELA and Math
- 21st Century Skills
- National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster
- FFA CONNECTIONS: Agriscience Fair, Environmental Science CDE, Food Science CDE, Ag Issues CDE, Veterinary Science CDE, Emerging Ag. Technology, Environmental Science, Veterinary Science, Proficiencies, Public & Extemporaneous Speaking Contests, Agriscience Student Contest

Agricultural Business / Farm Management
Valid Course Code: 010131

Course Description

This course introduces the free enterprise system, the study of economic principles, risk management, business law, budgets, finance, recordkeeping, and careers in agribusiness. Basic skills will be developed to manage a farm or agribusiness. Material will include: managing production/inventory, equipment, credit and taxes, market analysis and developing a business/farm plan. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.

Content/Process

Students will

1. Demonstrate employability and social skills relative to the career cluster.
2. Relate economic principles to agribusiness/farm management.
3. Evaluate record keeping systems and procedures in agribusiness or farming.
4. Investigate sources of capital for agriculture.
5. Relate government policies and business law to agriculture.
6. Identify agribusiness functions critical to success with minimizing risk.
7. Prepare budgets determining financial needs, costs, and loan repayments.
8. Analyze inventories to asset values, net worth, efficiency and production
9. Explore marketing options available to agricultural products.
10. Plan marketing strategies for agriculture products.
11. Manage human resources in agriculture.
12. Discuss GPS (global positioning systems) and their influence on agriculture.
13. Maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
14. Utilize activities of FFA as an integral component of course content and leadership development.
15. Apply science, math and communication skills within the technical content.

Connections

- Kentucky Occupational Skill Standards – Agricultural Education
- State Standards ELA and Math
- 21st Century Skills
- National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster

FFA CONNECTIONS:

- CDE's – Farm Business Management CDE, Marketing Plan CDE, Job Interview CDE, AIC contest
- Proficiencies – All related areas
- Speaking Contests related to subject area

Agricultural Structures and Designs
Valid Course Code: 010211

Course Description

This course prepares students to evaluate, design and construct agricultural structures. Students learn to design, evaluate and interpret construction plans and calculate a bill of materials. The skills learned in the Agricultural Construction Skills course may be incorporated to construct an agricultural structure. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have an agricultural experience program.

Content/Process

Students will:

1. Identify and utilize tools, techniques, and formulas most appropriate for specific tasks or projects.
2. Discuss types of renewable and non-renewable energy (e.g., solar, wind, hydro, fossil fuels)
3. Demonstrate safe practices specific to agriculture power, structural, and technical systems (e.g. PPE, materials handling, shop/laboratory operation)
4. Demonstrate proper use of measurement and layout tools
5. Develop plans using scale and legends
6. Prepare bills of materials to accompany plans and sketches for tasks or projects (i.e. wood structures, painting, fencing, concrete/stone/masonry)
7. Develop criteria for selecting materials based on cost, quantities, and characteristics for a specific project plan (i.e. wood structures, painting, fencing, concrete/stone/masonry)
8. Apply basic principles of design, fabrication, and installation of agricultural structures
9. Discuss the steps in constructing a project out of wood (measuring, cutting, fastening, finishing, etc.)
10. Calculate areas and volumes for coatings (paints, stains, varnishes) and determine proper paint/coating material method for various tasks
11. Determine proper insulation material and use for a given task.
12. Construct and/or repair fencing, including wood, static wire, electrical wire
13. Identify materials and tools used in electrical installation (wiring, fixtures, breakers, fuses, conduit)
14. Utilize the *National Electric Code* and local codes in installation of electrical components
15. Interpret basic electrical components, symbols, and diagrams (wiring, switches, receptacles, and duplexes)
16. Evaluate concepts and principles of geospatial technologies
17. Describe equipment and processes used in geospatial technologies
18. Relate the influence of agricultural mechanics industry to globalized production.
19. Demonstrate employability and social skills relative to the career cluster.
20. Maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
21. Utilize activities of FFA as an integral component of course content and leadership development.

Connections

- Kentucky Occupational Skill Standards – Agricultural Education
- State Standards ELA and Math
- 21st Century Skills
- National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster
- FFA CONNECTIONS: Agricultural Mechanics CDE, Welding CDE, Job Interview CDE, Agricultural Mechanics Design and Fabrication Proficiency, Agricultural Mechanics Repair and Maintenance Proficiency, Agricultural Mechanics Energy Systems Proficiency

Agricultural Employability Skills
Valid Course Code: 010121

Course Description
Agricultural employability skills provides opportunities to develop skills in: job searching, preparing resumes, writing letters of application, job interviews, attitude at work, communicating effectively, human relations and accepting responsibilities. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.
Content/Process
Students will: 1. Demonstrate employability and social skills relative to the career cluster. 2. Recommend Entrepreneurship and business training opportunities for agriculture to the community. 3. Compare agricultural business organizations and regulations. 4. Practice interpersonal relationships and communications. 5. Improve individual and group management skills. 6. Manage records and information systems for agriculture. 7. Manage capital resource for agriculture. 8. Investigate employer/employee responsibility. 9. Apply technology in agricultural employment industry. 10. Maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. 11. Utilize activities of FFA as an integral component of course content and leadership development. 12. Apply science, math and communication skills within the technical content.
Connections
• Kentucky Occupational Skill Standards – Agricultural Education • State Standards ELA and Math • 21st Century Skills • National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster • FFA CONNECTIONS: Job Interview CDE, Agriculture Sales CDE, Parliamentary Procedure CDE, Public Speaking, FFA Proficiency Contests, Chapter and State FFA Degree Application

Agriculture Math
Valid Course Code: 030707

Course Description
This course provides an introduction to agriculture math. Course material will include: Number properties and operations, measurement, geometry, data analysis and probability, algebraic thinking, personal development, employee and employer responsibilities, records, files, purchasing materials, stocking, selling and business account procedures. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.
Content/Process
Students will: 1. Demonstrate employability and social skills relative to the career cluster. 2. Maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. 3. Relate mathematical number properties and operations to agricultural practices. 4. Utilize measurements in an agricultural setting. 5. Demonstrate geometric principles through using agricultural contexts/examples. 6. Develop mathematical formulations relating to agricultural cash flows, budgeting, and farm management. 7. Formulate and apply statistical analyses to agricultural practices. 8. Investigate how algebraic thinking and formulations are beneficial to agriculture production. 9. Utilize activities of FFA as an integral component of course content and leadership development. 10. Apply science, math and communication skills within the technical content.
Connections
• Kentucky Occupational Skill Standards – Agricultural Education • State Standards ELA and Math • 21st Century Skills • National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster FFA CONNECTIONS: Record Keeping CDE, Proficiency Contests, Farm Business Management CDE

Agricultural Power and Machinery Operation
Valid Course Code: 010212

Course Description

This course provides instruction and hands-on experience in basic principles of agricultural machinery assembly, operation, maintenance, service, repair and safety. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program. This course may be extended to two credits and offered on a two-hour basis providing the instruction is enhanced with laboratory experience and in-depth skill development.

Content/Process

Students will:

1. Demonstrate safe practice specific to the agriculture power, structural, and technical systems (e.g. PPE, materials handling, shop/laboratory operation
2. Identify the influence of agricultural mechanics industry on globalized production.
3. Identify the importance and use of computer-based systems in agriculture, food, and natural resources (web/DVD based service information, software diagnostics)
4. Discuss types of renewable and non-renewable energy (e.g., solar, wind, hydro, fossil fuels)
5. Explain environmental impacts and sustainability of various energy sources (e.g., coal, hydro, wind, geothermal)
6. Differentiate between the operation of gasoline and diesel engines
7. Relate basic engine parts, as they pertain to carburation, compression, and ignition, to principles and operations of an engine.
8. Evaluate the importance of adjusting equipment including belts, drives, chains, and sprockets and maintenance of fluid conveyance components (e.g., hoses, lines, nozzles)
9. Maintain hydraulic and pneumatic systems.
10. Outline power unit and equipment controls, startup and shut down procedures, and pre-operation inspections using owners/service manuals
11. Select lubricants based on viscosity, source, and equipment compatibility
12. Establish a preventative maintenance schedule for power units and equipment (lubricants, fluids, filters, etc.)
13. Assess and internal combustion engine to determine service and repair of basic ignition, fuel, and compression
14. Discuss the importance and function of safety systems on tools and equipment
15. Demonstrate use of geospatial technologies as they relate to agriculture.
16. Demonstrate employability and social skills relative to the career cluster.
17. Maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
18. Utilize activities of FFA as an integral component of course content and leadership development.

Connections

- Kentucky Occupational Skill Standards – Agricultural Education
- State Standards ELA and Math
- 21st Century Skills
- National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster
- FFA CONNECTIONS: Agricultural Mechanics CDE, Small Power Equipment CDE, Job Interview CDE, Agricultural Mechanics Energy Systems Proficiency, and Agricultural Mechanics Repair and Maintenance Proficiency

Agricultural Sales and Marketing
Valid Course Code: 010111

Course Description
This course provides an introduction to agricultural sales and marketing. Course material will include: competition in the agriculture market place, marketing decisions, types of markets, contracting, government programs and regulations, personal development, employee and employer responsibilities, communications, promotion strategies, records, files, purchasing materials, stocking, selling and business account procedures. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.
Content/Process
Students will: 1. Demonstrate employability and social skills relative to the career cluster. 2. Relate interpersonal skills to success in agricultural sales and marketing. 3. Demonstrate effective verbal and written communications skills in agricultural sales and marketing. 4. Dramatize effective salesmanship techniques in agricultural sales and marketing. 5. Advertise and promote agricultural products. 6. Explore marketing options for agricultural products. 7. Utilize agricultural business procedures and record keeping. 8. Formulate a marketing plan for agricultural products. 9. Utilize technology in agricultural sales and marketing. 10. Maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. 11. Utilize activities of FFA as an integral component of course content and leadership development. 12. Apply science, math and communication skills within the technical content.
Connections
• Kentucky Occupational Skill Standards – Agricultural Education • State Standards ELA and Math • 21st Century Skills • National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster • FFA CONNECTIONS: Agriculture Sales CDE, Agriculture Marketing CDE, Agri-Entrepreneurship Contest, Farm Business Management CDE, Speaking Events, FFA Proficiency Contests

Agriscience
Valid Course Code: 030711

Course Description
Agriscience introduces the scientific agricultural approach to animal science and selection, and plant and land science. Agricultural career opportunities will be emphasized in each class. Laboratory experiences relating to basic and current technology will be part of the program. Content may be enhanced by utilizing appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program and keep appropriate records.

Content/Process
Students will: 1. Apply basic chemical and biological concepts to the production of food, including the interrelationships between soil and plants and the natural cycles which sustain all ecosystems. 2. Apply basic physiological and genetic principles to animal production systems. 3. Investigate the impact of human activities on the environment and resource conservation and stewardship and interpret the impact of globalization on agriculture. 4. Examine the application of technology and genetic engineering in modern agriculture systems. 5. Maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. 6. Utilize activities of FFA as an integral component of course content and leadership development. 7. Apply science, math and communication skills within the technical content. 8. Demonstrate employability and social skills relative to the career cluster.

Connections
• Kentucky Occupational Skill Standards – Agricultural Education • State Standards ELA and Math • 21st Century Skills • National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster • FFA CONNECTIONS: Impromptu Public Speaking Contest, Prepared Public Speaking, AIC, Parliamentary Procedure CDE, FFA Creed Speaking, Agriculture Issues CDE, Proficiency Contests, Burley Tobacco Essay, Envirothon CDE, Extemporaneous Speaking CDE, Job Interview CDE

Animal Science
Valid Course Code: 020501

Course Description
Animal Science develops basic knowledge and skills pertaining to livestock identification, selection, nutrition, reproduction and genetics, health management, and marketing of farm animals commonly produced in Kentucky. The latest production technologies, as well as, biotechnological applications will be included. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.

Content/Process
Students will: 1. Demonstrate employability and social skills relative to a career in animal sciences 2. Connect the benefits of animal agriculture to human kind; locally, nationally, and globally 3. Interpret proper animal science terminology and terminology of the food animal industry 4. Differentiate the common food animal species and their specific breeds 5. Select & evaluate food animal livestock species according to current industry standards 6. Apply principles of reproduction to food animal production. 7. Apply principles of digestion to food animal production 8. Formulate livestock feeding programs that meet nutritional requirements 9. Identify common animal health problems & synthesize their prevention/solution 10. Investigate biotechnology principles in relation to the livestock industry 11. Analysis the effect of animal agriculture and the environment 12. Maintain records on a supervised agricultural experience program & be able to summarize/analysis results for making financial decisions 13. Utilize activities of FFA as an integral component of course content and leadership development

Connections
• Kentucky Occupational Skill Standards – Agricultural Education • State Standards ELA and Math • 21st Century Skills • National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster • FFA CONNECTIONS: Livestock Evaluation CDE, Dairy Evaluation CDE, Equine Evaluation CDE, Veterinary Science CDE, Poultry Judging CDE, Meats Evaluation CDE, Beef, Dairy, Equine, Poultry, Small Animal, Swine, Sheep, Diversified Livestock Proficiencies. Beef, Dairy, Goat, Horse, Small Animal, Sheep, Swine Impromptu Speaking.

Animal Technology
Valid Course Code: 020502

Course Description

Animal Technology instruction concentrates on the advanced production practices and current biotechnological applications of one or more species of farm animals, based on the local community needs. Laboratory experiences will be used to emphasize concepts. Content may be enhanced by utilizing current industry accepted technology. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program

Content/Process

Students will:

1. Demonstrate employability and social skills relative to a career in animal sciences
2. Design animal breeding programs that employ the latest reproductive system manipulation techniques.
3. Design animal feeding programs that employ the latest nutrition principles and trends
4. Construct a herd health program for common food animal species
5. Demonstrate industry-accepted techniques for common herd health practices.
6. Demonstrate common veterinary best management practices for food animal
7. Assess the end product of livestock production (meat & milk)
8. Analysis common animal husbandry practice to discern the scientific merit behind them.
9. Formulation of an environmentally responsible waste management program for specific livestock production
10. Maintain records on a supervised agricultural experience program & be able to summarize/analysis results for making financial decisions
11. Utilize activities of FFA as an integral component of course content and leadership development

Connections

- Kentucky Occupational Skill Standards – Agricultural Education
- State Standards ELA and Math
- 21st Century Skills
- National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster
- FFA CONNECTIONS: Livestock Evaluation CDE, Dairy Evaluation CDE, Poultry CDE, Meats Evaluation CDE, Equine Evaluation CDE, Beef, Dairy, Equine, Poultry, Small Animal, Swine, Sheep, Diversified Livestock Proficiencies. Beef, Dairy, Goat, Horse, Small Animal, Sheep, Swine Impromptu Speaking.

Aquaculture
Valid Course Code: 020520

Course Description

This course is an introduction to aquaculture science. Instruction provides the fundamentals of aquatic plant and animal biology, anatomy/morphology and physiology in aquaculture, and the unique properties of water for aquaculture. Instruction also includes fish and aquatic crop production principles, management and marketing. Applications of biotechnology in aquaculture and aquaculture as sustainable agriculture, is also included. Content will be enhanced with appropriate applied scientific laboratory activities and computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.

Content/Process

Students will:

1. Demonstrate employability and social skills relative to the career cluster.
2. Relate the fundamentals of aquatic plant and animal biology to production
3. Analyze the unique chemical properties of water for aquaculture.
4. Demonstrate principles of aquaculture crop production from species selection to seed production to harvesting to processing.
5. Describe the components of managing the aquaculture facility and the marketing of crops produced.
6. Determine applications of biotechnology in aquaculture.
7. Evaluate aquaculture as sustainable agriculture.
8. Maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
9. Utilize activities of FFA as an integral component of course content and leadership development.
10. Apply science, math and communication skills within the technical content.

Connections

- Kentucky Occupational Skill Standards – Agricultural Education
- State Standards ELA and Math
- 21st Century Skills
- National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster
- FFA CONNECTIONS: Veterinary Science CDE, Specialty Animal Proficiency Contest, Animal Related Speaking Contest

Crop Technology
Valid Course Code: 010610

Course Description
Crop Technology instruction concentrates on the production practices and current biotechnological applications of one or more agriculture crops. Hands-on experiences will be emphasized. Instruction will include variety selection, seed bed preparation, fertilization, pest, weed and disease control, harvesting, and marketing crops. Current biotechnological applications may be included. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have an agricultural experience program.
Content/Process
Students will: 1. Demonstrate employability and social skills relative to the career cluster. 2. Specify the benefit of crop production in local, national, and world agriculture. 3. Relate the economic factors of crop production in local, national, and world agriculture. 4. Evaluate environmental factors of crop production in local, national, and world agriculture. 5. Determine the impact of soil and water resources on crop production. 6. Demonstrate ability to read and utilize seed tag. 7. Utilize management practices in row crops. 8. Utilize management practices in small grains. 9. Utilize management practices in forages/pastures. 10. Relate biotechnology to plant production. 11. Identify common agronomic plants, weeds, grains, feeds and seeds. 12. Demonstrate an understanding of agricultural law. 13. Maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. 14. Utilize activities of FFA as an integral component of course content and leadership development. 15. Apply science, math and communication skills within the technical content.
Connections
• Kentucky Occupational Skill Standards – Agricultural Education • State Standards ELA and Math • 21st Century Skills • National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster • FFA CONNECTIONS: Crop Impromptu Speaking, Agri-Entrepreneurship, Marketing Plan CDE, Agronomy CDE, Ag Issues CDE, Diversified Agricultural Production Proficiency, Diversified Crop Production Proficiency, Fiber and/or Oil Crop Production Proficiency, Forage Production Proficiency, Grain Production Proficiency, Specialty Crop Production Proficiency, Vegetable Production Proficiency

Environmental Science & Technology
Valid Course Code: 030609

Course Description

This course is an intermediate scientific study of environmental technology. It is designed to develop an awareness of environmental concerns related to air, water, soil, land use management, waste management, and their interrelationship with the biological ecosystem. Soil formation, conservation and evaluation material will also be included. Content will be enhanced with appropriate computer applications, scientific laboratory activities, field experimentation, community development projects, and occupational development. Leadership development will be provided through FFA. Each student will be expected to have an agricultural experience program.

Content/Process

Students will:

1. Demonstrate employability and social skills relative to the career cluster.
2. Distinguish the importance of conserving and managing our natural resources to maintain a high standard of living.
3. Investigate the various types of ecosystems and management skills for a productive life cycle.
4. Relate the physical properties of soil and its effect to the different aspects of the environment.
5. Relate environmental issues to the management of waste products.
6. Investigate the effects of land use and environmental legislation in multiple use planning.
7. Relate the proper handling, application and disposal of chemicals to protection of the environmental balance.
8. Analyze the importance of air and water quality on society to ensure and improve sustainable standards.
9. Maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
10. Utilize activities of FFA as an integral component of course content and leadership development.
11. Apply science, math and communication skills within the technical content.

Connections

- Kentucky Occupational Skill Standards – Agricultural Education
- State Standards ELA and Math
- 21st Century Skills
- National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster
- FFA CONNECTIONS: Environmental Science CDE, Ag Issues CDE, Forestry CDE , Environmental Science, Emerging Ag Technologies, Wildlife Proficiencies, Speaking Contests, Agriscience Fair

Equine Science
Valid Course Code: 020510

Course Description
Equine science develops knowledge and skill pertaining to breed identification and selection, anatomy, physiology, nutrition, genetics and reproductive management, training principles, grooming, health disease, parasite control and sanitation practices. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have an agricultural experience program.

Content/Process

Students will:

1. Demonstrate employability and social skills relative to the career cluster
2. Relate the benefits of the equine industry to humankind in local, national, and world agriculture.
3. Interpret proper equine science terminology and terminology of the equine science industry
4. Contrast equine anatomy, physiology, and purposes of different breeds.
5. Relate the anatomy and physiology of the equine digestive system to proper nutritional practices.
6. Apply principles of health management and sanitation practices to the equine industry.
7. Demonstrate proper grooming and handling techniques in the equine industry.
8. Evaluate the role of equine domestication and the various types of equine in the world today.
9. Identify and utilize proper equine tack and equipment
10. Identify the anatomy and physiology of the equine reproduction system and utilize proper breeding techniques.
11. Contrast horsemanship, showmanship, and training practices in the equine industry.
12. Compare and contrast various types of equine facilities and materials.
13. Relate equine agriculture to the environment.
14. Select and evaluate various types of equine.
15. Maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
16. Investigate biotechnological principles to the equine industry.
17. Utilize activities of FFA as an integral component of course content and leadership development.

Connections

- Kentucky Occupational Skill Standards – Agricultural Education
- State Standards ELA and Math
- 21st Century Skills
- National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster
- FFA CONNECTIONS: Horse Evaluation CDE, Veterinary Science CDE, Equine, Veterinary Science Proficiencies, Horse Impromptu, Speaking Contests, Quiz Bowls, etc.

Floriculture/ Floral Design
Valid Course Code: 010621

Course Description
Floriculture and floral design provides instruction to develop floral design techniques using silk, dried and fresh flowers. Students will learn operation and management techniques of a florist business as well as identification, production and cultural maintenance practices of plants used in floral design and interior landscaping. Content may be enhanced by utilizing appropriate technology. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.
Content/Process
Students will: 1. Demonstrate employability and social skills relative to the career cluster. 2. Relate floriculture/floral design practices to environmental impact. 3. Determine principles of design and elements of art in flower arranging. 4. Implement design skills in "real-world" connections. 5. Incorporate special techniques (bows, cards, wiring, tinting, etc.) into floral design. 6. Demonstrate techniques in conditioning and maintaining flowers and floral design materials. 7. Maintain industry related equipment and materials. 8. Apply safety regulations and practices. 9. Identify common plant species, diseases and floral tools. 10. Incorporate the color wheel and color schemes into floral designs. 11. Formulate marketing plan. 12. Apply principles of interior landscaping. 13. Maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. 14. Utilize activities of FFA as an integral component of course content and leadership development. 15. Apply science, math and communication skills within the technical content.
Connections
• Kentucky Occupational Skill Standards – Agricultural Education • State Standards ELA and Math • 21st Century Skills • National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster • FFA CONNECTIONS: Floriculture CDE, Floral Impromptu Speaking, Greenhouse Impromptu Speaking, Floriculture Proficiency, Diversified Horticulture Proficiency

Food Processing, Distribution, and Marketing
Valid Course Code: 010701

Course Description

Food Processing Distribution and Marketing involves gaining knowledge in the production of food products from farm level to the consumer with emphasis on distribution and marketing to a global society. Potential marketing avenues and advertising of processed products along with current world food production issues will be examined. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.

Content/Process

Students will:

1. Demonstrate employability and social skills relative to the career cluster.
2. Determine trends in world and U. S. food production.
3. Explore preservation methods such as curing, canning, and pasteurization of foods.
4. Investigate methods of reducing food pathogens and improving food quality during processing.
5. Examine food chemistry and physics as related to the formation of food products and the relationship of nutrients in food development.
6. Demonstrate the ability to produce a nutrition fact label for a processed product.
7. Recognize the relationship of biotechnology and science in food production.
8. Identify global distribution trends of food consumption patterns of various regions of the world.
9. Advertise and promote processed food products.
10. Explore marketing options for food products on an international spectrum.
11. Formulate a marketing plan for processed products.
12. Maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
13. Utilize activities of FFA as an integral component of course content and leadership development.
14. Apply science, math and communication skills within the technical content.

Connections

- Kentucky Occupational Skill Standards – Agricultural Education
- State Standards ELA and Math
- 21st Century Skills
- National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster
- FFA CONNECTIONS: Food Science CDE, Milk Quality and Products CDE, Poultry CDE, Ag Sales CDE, Marketing Plan CDE, Food Science, Emerging Ag Technologies, Ag Sales, Ag Services Proficiencies, Public and Extemp. Speaking Contests, Agriscience Fair, Agriscience Student Contest

Food Science & Technology
Valid Course Code: 010702

Course Description

Food Technology introduces the issues of food production, nutrition, food chemistry and the development of food products in a global society. The government regulations regarding foods and the exploration of career opportunities will also be covered. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.

Content/Process

Students will:

1. Demonstrate employability and social skills relative to the career cluster.
2. Determine trends in world and U. S. food production.
3. Relate the food industry to the consumer, including food labeling and economics.
4. Investigate food safety issues from farm to retail, including microbial problems, risk assessment, food handling and HAACP concepts.
5. Compare nutrient components of different food products and their effects on consumer's health and digestion.
6. Investigate food physics as related to the production of products in the industry.
7. Explore inspection, slaughter, and fabrication, preservation, and distribution aspects of the red meat industry.
8. Investigate the poultry industry from meat to egg and how it impacts current food trends.
9. Investigate production methods and marketing of dairy food products.
10. Explore the small grains products, fruits, and vegetables that currently play a role in food production.
11. Maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
12. Utilize activities of FFA as an integral component of course content and leadership development.
13. Apply science, math and communication skills within the technical content.

Connections

- Kentucky Occupational Skill Standards – Agricultural Education
- State Standards ELA and Math
- 21st Century Skills
- National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster
- FFA CONNECTIONS: Food Science CDE, Milk Quality and Products CDE, Poultry CDE, Ag Sales CDE, Marketing Plan CDE, Food Science, Emerging Ag Technologies, Ag Sales, Ag Services Proficiencies, Public and Extemp. Speaking Contests, Agriscience Fair, Agriscience Student Contest

Forestry
Valid Course Code: 030610

Course Description
This course introduces the science of silviculture. The course includes career opportunities, tree identification, tree production, forestry management, timber harvesting, wood utilization and the environmental and ecological aspects of forestry. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.

Content/Process
Students will: 1. Demonstrate employability and social skills relative to the career cluster 2. Utilize forestry tools and equipment 3. Survey land and cruise timber. 4. Investigate physical characteristics of trees, plant processes, growth and taxonomy. 5. Recommend management practices including: genetic potential, reforestation, timber stand improvement, and harvesting. 6. Investigate environmental, social, and economic value of forest. 7. Investigate the influence/importance of forestry from local to global level. 8. Distinguish wood characteristics including wood properties, products, wood identification and physiology. 9. Evaluate methods for forest protection from insect, disease and other destructive agents. 10. Maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. 11. Utilize activities of FFA as an integral component of course content and leadership development. 12. Apply science, math and communication skills within the technical content.

Connections
• Kentucky Occupational Skill Standards – Agricultural Education • State Standards ELA and Math • 21st Century Skills • National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster • FFA CONNECTIONS: Forestry CDE, Environmental Science CDE, Environmental Science, Forestry, Emerging Ag Technologies, Wildlife Proficiencies, Speaking Contests, Agriscience Fair

Greenhouse Technology
Valid Course Code: 010641

Course Description
Greenhouse Technology provides instruction in greenhouse structures and greenhouse environment regulations. Plant growth and development and propagation are included as well as production and maintenance of bedding and container produced plants. Fundamental principles of vegetable production and commercial production of vegetable crops as well as marketing of horticulture products may be included. Content may be enhanced with appropriate technology. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.
Content/Process
Students will: 1. Demonstrate employability and social skills relative to the career cluster. 2. Propose greenhouse structural designs and equipment. 3. Manipulate greenhouse environmental conditions. 4. Prepare soils and planting media. 5. Investigate plant processes and development. 6. Select plant propagation methods. 7. Implement bedding and vegetable crop production and management strategies. 8. Formulate marketing plan for greenhouse plants and or vegetable crops. 9. Demonstrate business and marketing procedures. 10. Maintain, operate and repair facilities and equipment. 11. Develop and implement an integrated pest management plan. 12. Apply safety regulations and practices. 13. Maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. 14. Utilize activities of FFA as an integral component of course content and leadership development. 15. Apply science, math and communication skills within the technical content.
Connections
• Kentucky Occupational Skill Standards – Agricultural Education • State Standards ELA and Math • 21st Century Skills • National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster • FFA CONNECTIONS: Floriculture CDE, Greenhouse Impromptu, Diversified Horticulture Proficiency, Floriculture Proficiency, Nursery & Landscape CDE, Agriculture Marketing CDE

Landscape and Turf Management
Valid Course Code: 010631

Course Description

This course combines landscaping and turf management curriculum. The material includes identification of landscape plants and their characteristics, site evaluation, site design, calculation of materials needed, costs for bidding, and installing landscape plans. Landscape plant maintenance will also be presented. Selection, culture and management of turf species used for lawns, golf courses, athletic fields and erosion control may also be included. Content may be enhanced by utilizing appropriate technology. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.

Content/Process

Students will:

1. Demonstrate employability and social skills relative to the career cluster.
2. Determine principles of design and elements of art in landscape design.
3. Select appropriate plants for design.
4. Calculate costs of landscape plans for installation.
5. Develop a plan for fertilizing landscape and turf areas.
6. Recommend site preparation and landscape plan installation.
7. Establish and maintain residential and commercial turf grass areas.
8. Formulate landscape and turf grass maintenance schedule.
9. Calculate landscape maintenance costs.
10. Understand how to maintain golf courses.
11. Demonstrate how to propagate and produce landscape plants.
12. Develop a plan for controlling pest and diseases.
13. Identify landscape plants and turf grass species.
14. Maintain, operate and repair facilities and equipment.
15. Apply safety practices and regulations.
16. Maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
17. Utilize activities of FFA as an integral component of course content and leadership development.
18. Apply science, math and communication skills within the technical content.

Connections

- Kentucky Occupational Skill Standards – Agricultural Education
- State Standards ELA and Math
- 21st Century Skills
- National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster
- FFA CONNECTIONS: Nursery CDE, Agriculture Sales CDE, Turf Impromptu, Nursery and Landscaping Impromptu, Agri-Entrepreneurship, Landscape Management Proficiency, Nursery Management Proficiency, Turfgrass Management Proficiency

Leadership Dynamics
Valid Course Code: 030702

Course Description

This course is designed to assist students with developing skills needed to be successful leaders and responsible members of society. The student will develop personal attributes and social skills. Emphasis will be placed on interpersonal skills, team building, communication, personal development and leadership. This course will include opportunities for students to apply their knowledge.

Content/Process

Students will

1. Develop personal and group goals.
2. Compare the types of leadership styles.
3. Assess the importance of qualified leaders to the success of organizations.
4. Appraise personal characteristics of successful leaders.
5. Develop verbal and non-verbal communication skills to enhance success in school and transition to the world of work.
6. Demonstrate appropriate business/professional etiquette.
7. Demonstrate shared decision making.
8. Develop techniques to resolve conflicts that occur in school, home, community, and workplace (interpersonal team skills).
9. Demonstrate the use of parliamentary procedure skills in presiding over a meeting.
10. Describe how ethical and social behaviors affect our lives.
11. Identify self-management techniques.
12. Identify stress management techniques.
13. Analyze organizational structures and their components (including bylaws, officers, committees, and program of work.)
14. Demonstrate awareness of cultural diversity and equity issues.
15. Analyze leadership opportunities available in the school and community.

Connections

- Kentucky Occupational Skill Standards – Agricultural Education
- State Standards ELA and Math
- 21st Century Skills
- National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster
- FFA Connections: Agriculture Issues CDE, Parliamentary Procedure CDE, Job Interview CDE, Ag. Education Proficiency, Speaking CDEs

Nursery and Orchard Technology
Valid Course Code: 010651

Course Description
Nursery and orchard technology will provide instruction in production practices for container and field-grown nursery stock; identification, function, growing requirements, hardiness, problems and methods of different landscape plant materials; propagating and growing evergreens/deciduous plants; and the operation of garden centers and nurseries. Principles of home and commercial fruit production may also be included. Content may be enhanced by utilizing appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.

Content/Process

Students will:

1. Demonstrate employability and social skills relative to the career cluster.
2. Investigate plant processes and plant development.
3. Demonstrate methods of plant propagation.
4. Prepare soils and planting media for nursery and/or orchard crops.
5. Implement production management strategies for nursery and/or orchard crops.
6. Relate nursery technology practices to environmental impact.
7. Demonstrate harvesting and merchandising of nursery crops and/or orchard crops.
8. Formulate marketing plan for nursery and/or orchard crops.
9. Design and construct growing structures.
10. Maintain, operate, and repair facilities and equipment.
11. Apply safety regulations and practices.
12. Maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
13. Utilize activities of FFA as an integral component of course content and leadership development.
14. Apply science, math and communication skills within the technical content.

Connections

- Kentucky Occupational Skill Standards – Agricultural Education
- State Standards ELA and Math
- 21st Century Skills
- National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster
- FFA CONNECTIONS: Nursery CDE, Ag Sales CDE, Ag Marketing CDE, Diversified Horticulture, Food Science, Nursery Operations Proficiencies, Nursery/Landscape Impromptu Speaking Contest

Plant and Land Science
Valid Course Code: 010611

Course Description
Plant and Land Science develops basic scientific knowledge and skills pertaining to management of the land and its effects on food and fiber production, the environment, and the quality of life. The relationship of land to plant growth will be emphasized. Plant composition, reproduction, growth, and current biotechnological advances will be included. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.
Content/Process
Students will: 1. Demonstrate employability and social skills relative to the career cluster. 2. Assess the benefit of plants and land to human kind in local, national, and world agriculture. 3. Relate the physical properties of soil to plant and land use. 4. Relate the chemical properties of soil to plant and land use. 5. Relate the biological properties of soil to plant and land use. 6. Critique the principles of good land use. 7. Select appropriate plant nutrition practices and management. 8. Examine the processes for plant development, growth, and reproduction. 9. Relate biotechnology to plant production. 10. Maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. 11. Utilize activities of FFA as an integral component of course content and leadership development. 12. Apply science, math and communication skills within the technical content.
Connections
• Kentucky Occupational Skill Standards – Agricultural Education • State Standards ELA and Math • 21st Century Skills • National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster • FFA CONNECTIONS: Land Judging CDE, Agronomy CDE, Grain, Div. Crop, Fiber & Oil Crop, Forage, Specialty Crop Proficiencies, Crop Impromptu Speaking Contests, etc.

Principles of Agricultural Science and Technology
Valid Course Code: 030715

Course Description
This course provides instruction in the foundations of the various segments of the agricultural industry. Agricultural career opportunities will be emphasized. Animal science, plant and land science, and agricultural mechanics skills will be the focus of the curriculum. The selection and planning of a supervised agricultural experience program and related record keeping will be presented. Leadership development will be provided through FFA. Students will receive personal guidance and counseling with preparatory instructional program selection.
Content/Process
Students will: 1. Demonstrate employability and social skills relative to the career cluster. 2. Develop a supervised agricultural experience programs including use of record keeping. 3. Explore basic agricultural skills needed including: math, communication, and employability skills. 4. Identify and examine general soil and plant sciences. 5. Identify and examine general animal sciences. 6. Demonstrate basic agricultural mechanics and construction skills. 7. Investigate basic environmental, food and fiber interrelationships. 8. Maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. 9. Participate in FFA leadership activities which are integrated into the course**.**
Connections
• Kentucky Occupational Skill Standards – Agricultural Education • State Standards ELA and Math • 21st Century Skills • National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster • FFA CONNECTIONS: Creed CDE, Quiz Contest, Record Keeping CDE, Various other CDE's

Small Animal Science & Technology
Valid Course Code: 020503

Course Description

This course develops scientific knowledge, management practices, and marketing strategies in small and specialty animal technology. The curriculum includes identification, anatomy, physiology, nutrition, health, selection and care of small animals such as dogs, cats, rabbits, companion birds, ostriches, emus, tropical fish, and fur bearers. Content will be enhanced with appropriate applied scientific laboratory activities and computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.

Content/Process

Students will:

1. Demonstrate employability and social skills relative to the career cluster.
2. Relate small animal technology to current world trends.
3. Interpret proper specialty and small animal terminology and terminology of the industry.
4. Describe the distinguishing characteristics of the different breeds of small and specialty animal species.
5. Describe and compare the physiology and anatomy of small animal species.
6. Describe and compare the process of reproduction of small and specialty animal species.
7. Relate the anatomy and physiology of the digestive systems of small and specialty animals to proper nutritional practices.
8. Describe the care, handling, sheltering, and grooming of small and specialty animals.
9. Investigate both diseases and parasites and plan a health maintenance schedule in small and specialty animals
10. Evaluate the management and marketing of small and specialty animal services and products.
11. Select and evaluate various breeds of small and specialty animals.
12. Relate small and specialty animal agriculture to the environment.
13. Investigate biotechnology principles to the small and specialty animal industry.
14. Maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
15. Utilize activities of FFA as an integral component of course content and leadership development.

Connections

- Kentucky Occupational Skill Standards – Agricultural Education
- State Standards ELA and Math
- 21st Century Skills
- National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster
- FFA CONNECTIONS: Veterinary Science CDE, Ag Issues CDE , Small Animal Care, Specialty Animal Production, Veterinary Science Proficiencies, Small Animal Impromptu Speaking Contests, Quiz Bowls, etc.

Small Power Equipment
Valid Course Code: 010231

Course Description
This course is designed to develop skills in maintenance, repair, and operation of equipment, small combustion-type engine and electric motors. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program.

Content/Process

Students will:

1. Demonstrate safe practices specific to agriculture power, structural, and technical systems (e.g. PPE, materials handling, shop/laboratory operation)
2. Compare the energy efficiency of various fuel sources (e.g., gas, diesel, natural gas, biofuels)
3. Differentiate between the operation of gasoline and diesel engines
4. Identify principles of hydraulic and pneumatic system operation
5. Identify basic small engine parts and principles of operations and their applications in agriculture.
6. Perform maintenance schedules and procedures for agricultural small engines.
7. Outline power unit and equipment controls, startup and shut down procedures, and pre operation inspections using owners/service manuals
8. Use technical manuals and computer based diagnostics in engine systems analysis and repair
9. Assess an internal combustion engines to determine service and repair of basic ignition, fuel, and compression
10. Assess malfunctioning electrical system components such as battery and lighting
11. Determine small engine specifications using precision measuring equipment.
12. Service power transmissions.
13. Evaluate the importance of adjusting equipment including belts, drives, chains, and sprockets and maintenance of fluid conveyance components (e.g., hoses, lines, nozzles)
14. Demonstrate employability and social skills relative to the career cluster.
15. Maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
16. Utilize activities of FFA as an integral component of course content and leadership development.
17. Apply science, math and communication skills within the technical content.

Connections

- Kentucky Occupational Skill Standards – Agricultural Education
- State Standards ELA and Math
- 21st Century Skills
- National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster
- FFA CONNECTIONS: Small Power Equipment CDE, Agricultural Mechanics CDE, Job Interview CDE, Agricultural Mechanics Energy Systems Proficiency, and Agricultural Mechanics Repair and Maintenance Proficiency

Veterinary Science
Valid Course Code: 020511

Course Description

This course introduces students to the field of veterinary science. Major topics include veterinary terminology, safety, sanitation, anatomy/physiology, clinical exams, hospital procedures, parasitology, posology, laboratory techniques, nutrition, disease, office management, and animal management. Careers are also explored. Leadership development will be provided through FFA. Each student will be expected to have an agricultural experience program.

Content/Process

Students will

1. Examine proper safety and sanitation techniques when handling various animal species.
2. Discuss and explain multiple veterinary concepts and terminology.
3. Compare, examine, and identify the anatomy and physiology of various animal species using proper veterinary terminology.
4. Take part in clinical exams of an assortment of animal species
5. Examine appropriate hospital procedures and discover ways to apply them to veterinary science practices.
6. Define and differentiate among the various parasites, their causes, symptoms, treatments, and the animal species that can be affected.
7. Discover how to utilize mathematical skills in the field of veterinary science.
8. Develop laboratory techniques and take part in activities and procedures to further assist with the various veterinary science concepts.
9. Define nutrient, list the nutrient groups, explain their functions, and explain how feed are balanced to meet nutrient requirements of animals.
10. Explain and discuss the principals of disease and evaluate how they affect numerous animal species.
11. Discuss appropriate animal management practices and how they relate to veterinary science.
12. Maintain records on supervised agricultural experience program and be able to summarize and analyze results in making financial decisions.
13. Utilize activities of FFA as an integral component of course content and leadership development.
14. Apply science, math and communication skills within the technical content.

Connections

- Kentucky Occupational Skill Standards – Agricultural Education
- State Standards ELA and Math
- 21st Century Skills
- National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster
- FFA CONNECTIONS: Veterinary Science CDE, All Animal Impromptu Speaking areas, Livestock Evaluation CDE, Dairy Evaluation CDE, Horse Evaluation CDE, Poultry Judging CDE, Veterinary Science proficiencies

Wildlife Resources
Valid Course Code: 030611

Course Description
Develops an awareness of wildlife industry resources. The course includes: a study of ecology and ecosystems, wildlife habitat, population dynamics, management technics that deal with wildlife in all areas and the regulations that affect the wildlife industry. Content may be enhanced with appropriate applied scientific laboratory activities and computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program
Content/Process
Students will: 1. Demonstrate employability and social skills relative to the career cluster. 2. Analyze the dynamics of an ecosystem. 3. Examine the diverse components of habitat and it's relation to wildlife. 4. Calculate the population dynamics that relate to wildlife. 5. Identify the human role in wildlife and habitat management as it applies to historic, social, political, and economic concerns. 6. Examine the human impact on wildlife resources. 7. examine the Federal and State Laws and Regulation that pertain the 8. Conservation and preservation of wildlife. 9. Maintain records on a supervised agricultural experience program and be able to summarize and analyze results in making financial decisions. 10. Utilize activities of FFA as an integral component of course content and leadership development. 11. Apply science, math and communication skills within the technical content.
Connections
• Kentucky Occupational Skill Standards – Agricultural Education • State Standards ELA and Math • 21st Century Skills • National Career Technical Standards in Agriculture, Food, and Natural Resources Cluster • FFA CONNECTIONS: Environmental Science CDE, Forestry CDE, Wildlife Proficiency, Agriscience Fair